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# ANNIE Phase II: Experiment Overview and first data

*Friday, February 19, 2021 5:10 PM (20 minutes)*

The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a 26-ton Gd-doped water Cherenkov detector installed in the Booster Neutrino Beam (BNB) at Fermilab. The primary physics goal of ANNIE is to measure the neutron yield from  $\nu\mu$  interactions as a function of  $Q^2$  in order to constrain neutrino-nucleus interaction theoretical models. Identifying and counting final state neutrons provides a new experimental handle to study systematic uncertainties related to the neutrino energy reconstruction in oscillation experiments. To achieve that goal ANNIE will make the first use of the novel Large Area Picosecond Photodetectors (LAPPDs) and demonstrate the feasibility of this technology as a new tool in physics experiments. In this talk we present an overview of the experiment and the first beam commissioning and calibration data.

## Collaboration name

**Primary author:** Dr DRAKOPOULOU, Evangelia (University of Edinburgh)

**Presenter:** Dr DRAKOPOULOU, Evangelia (University of Edinburgh)

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